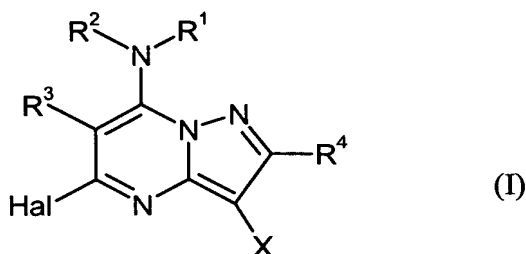


### ***Amendments to the Claims***

This listing of claims will replace all prior versions and listings of claims in the application.

1. (Currently amended) ~~Pyrazolopyrimidines~~ A compound of the formula



in which

R<sup>1</sup> represents optionally substituted alkyl, optionally substituted alkenyl, optionally substituted alkynyl, optionally substituted cycloalkyl, or optionally substituted heterocyclyl,

R<sup>2</sup> represents hydrogen or alkyl, or

R<sup>1</sup> and R<sup>2</sup> together with the nitrogen atom to which they are bound, represent ~~a optionally~~ an optionally substituted heterocyclic ring,

R<sup>3</sup> represents optionally substituted heterocyclyl,

R<sup>4</sup> represents hydrogen or alkyl,

Hal represents halogen and

X represents halogen, cyano, nitro, alkyl, optionally substituted alkenyl, optionally substituted alkynyl, hydroxyalkyl, alkoxyalkyl, halogenalkyl, cycloalkyl, formyl, thiocarbamoyl, alkoxycarbonyl, alkylcarbonyl, hydroxyiminoalkyl, alkoximinoalkyl, alkylthio, alkylsulphinyl,

alkylsulphonyl or alkylaminocarbonyl.

2. (Currently amended) ~~Pyrazolopyrimidines~~ The compound of the formula (I) according to Claim 1, in which

R<sup>1</sup> represents alkyl having 1 to 6 carbon atoms, which may be substituted one to five times, identically or differently, by halogen, cyano, hydroxy, alkoxy having 1 to 4 carbon atoms and/or cycloalkyl having 3 to 6 carbon atoms, or

R<sup>1</sup> represents alkenyl having 2 to 6 carbon atoms, which may be substituted one to three times, identically or differently by halogen, cyano, hydroxy, alkoxy having 1 to 4 carbon atoms and/or cycloalkyl having 3 to 6 carbon atoms, or

R<sup>1</sup> represents alkynyl having 2 to 6 carbon atoms, which may be substituted one to three times, identically or differently by halogen, cyano, alkoxy having 1 to 4 carbon atoms and/or cycloalkyl having 3 to 6 carbon atoms, or

R<sup>1</sup> represents cycloalkyl having 3 to 6 carbon atoms, which may be substituted one to three times, identically or differently by halogen and/or alkyl having 1 to 4 carbon atoms, or

R<sup>1</sup> represents saturated or unsaturated heterocyclyl having 5 or 6 ring members and 1 to 3 heteroatoms, ~~such as~~ selected from the group consisting of nitrogen, oxygen, ~~and/or~~ and sulphur, the heterocyclyl able to be substituted once or twice by halogen, alkyl having 1 to 4 carbon atoms, cyano, nitro and/or cycloalkyl having 3 to 6 carbon atoms,

R<sup>2</sup> represents hydrogen or alkyl having 1 to 4 carbon atoms, or

R<sup>1</sup> and R<sup>2</sup> together with the nitrogen atom to which they are bound, represent a saturated or unsaturated heterocyclic ring having 3 to 6 ring elements, the heterocyclic compound able to contain a further nitrogen, oxygen, or sulphur atom as a ring element and the heterocyclic compound able to be substituted up to three times by fluoride, chloride, bromide, nitro, alkyl having 1 to 4 carbon atoms and/or halogenalkyl having 1 to 4 carbon atoms and 1 to 9 fluorine and/or chlorine atoms,

R<sup>3</sup> represents saturated or unsaturated heterocyclyl having 5 or 6 ring members and 1 to 4 heteroatoms, ~~such as~~ selected from the group consisting of oxygen, nitrogen ~~and/or~~ and sulphur, the heterocyclyl being able to be substituted one to four times, identically or differently by fluoride, chloride, bromide, cyano, nitro, alkyl, alkoxy, hydroximinoalkyl or alkoximinoalkyl each having 1 to 3 carbon atoms in each alkyl part, halogenalkyl or halogenalkoxy each having 1 to 3 carbon atoms and 1 to 7 halogen atoms,

R<sup>4</sup> represents hydrogen or alkyl having 1 to 4 carbon atoms

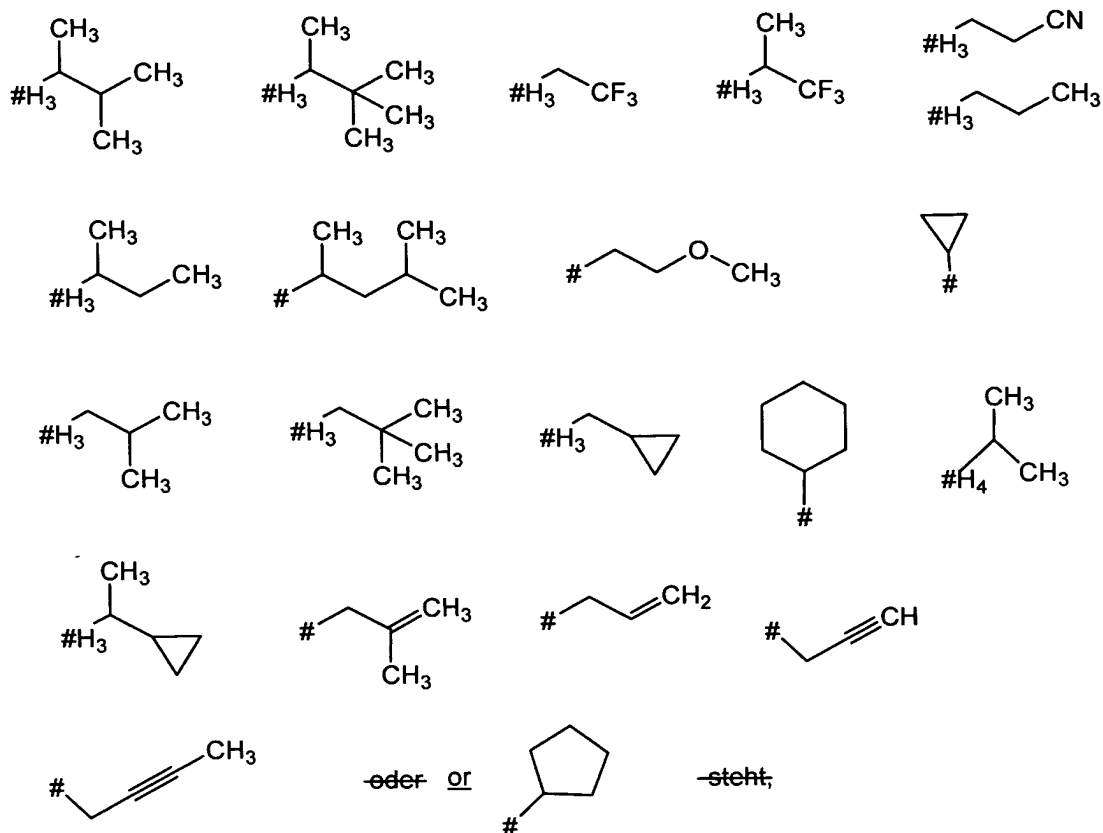
Hal represents fluoride, chloride, or bromide and

X represents cyano, fluoride, chloride, bromide, iodide, nitro, formyl, halogenalkyl having 1 to 6 carbon atoms and 1 to 9 fluoride, chloride and/or bromide atoms, alkyl having 1 to 4 carbon atoms, alkenyl having 2 to 6 carbon atoms, alkenyl, substituted by carboxyl, methoxycarbonyl, or ethoxycarbonyl, having 2 to 5 carbon atoms in the alkenyl part, alkynyl having 2 to 6 carbon atoms, alkenyl, substituted by carboxyl, methoxycarbonyl, or ethoxycarbonyl, having 2 to 5 carbon atoms in the alkynyl part, hydroxyalkyl having 1 to 4 carbon

atoms, alkoxyalkyl having 1 to 4 carbon atoms in the alkoxy part and 1 to 4 carbon atoms in the alkyl part, cycloalkyl having 3 to 6 carbon atoms, thio-carbamoyl, alkoxycarbonyl having 1 to 4 carbon atoms in the alkoxy part, alkylcarbonyl having 1 to 4 carbon atoms in the alkyl part, hydroximinoalkyl having 1 to 4 carbon atoms in the alkyl part, alkoximinoalkyl having 1 to 4 carbon atoms in the alkoxy part and 1 to 4 carbon atoms in the alkyl part, alkylthio having 1 to 4 carbon atoms, alkylsulphinyl having 1 to 4 carbon atoms, alkylsulphonyl having 1 to 4 carbon atoms or alkylaminocarbonyl having 1 to 4 carbon atoms in the alkyl part.

3. (Currently amended) ~~Pyrazolopyrimidines~~ A compound of the formula (I) according to Claim 1 or 2, in which

R<sup>1</sup> represents a residue of the formula



(Key: ~~oder~~ = or

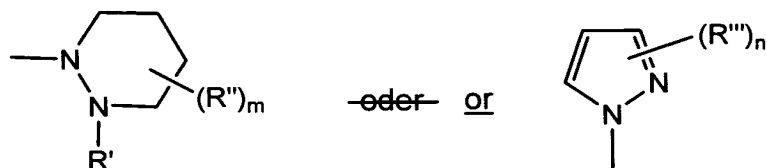
~~steht~~ = represents)

# marking the linkage point,

R<sup>2</sup> represents hydrogen, methyl, ethyl or propyl, or

R<sup>1</sup> and R<sup>2</sup> together with the nitrogen atom to which they are bound, represent pyrrolidiny, piperidiny, morpholiny, thiomorpholiny, piperaziny, 3,6-dihydro-1(2H)-piperidiny or tetrahydro-1(2H)-pyridaziny, these residues being able to be substituted by 1 to 3 fluoride atoms, 1 to 3 methyl groups and/or trifluoromethyl,  
or

R<sup>1</sup> and R<sup>2</sup> together with the nitrogen atom to which they are bound, represent a residue of the formula

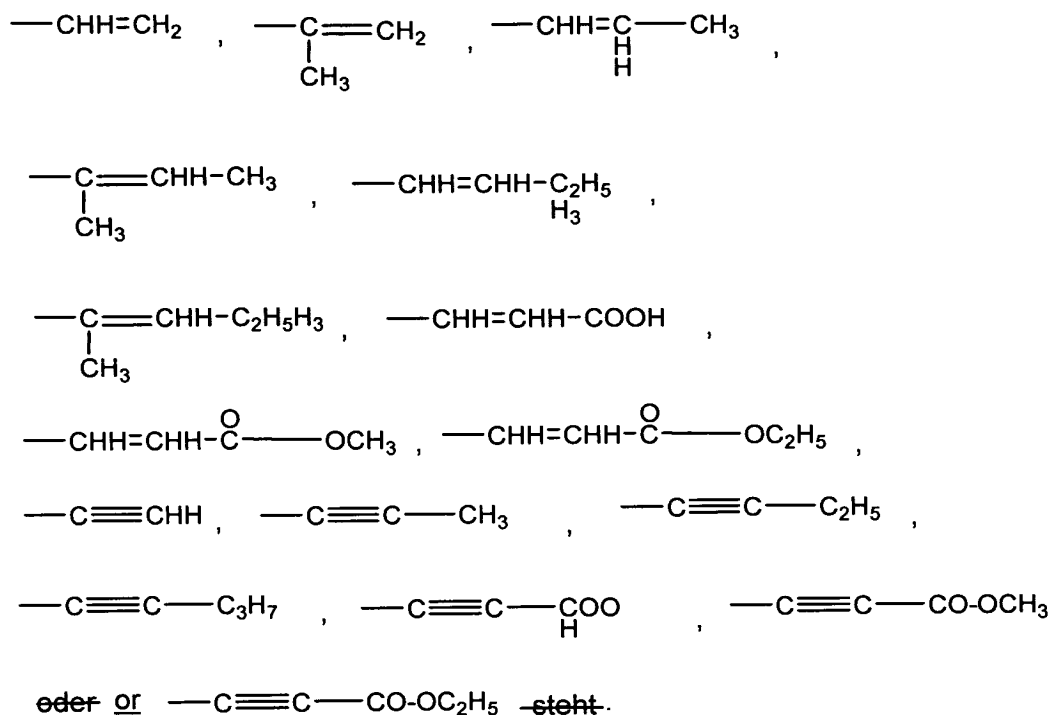


(Key: ~~-oder-~~ = or)

in which

- R' represents hydrogen or methyl,
- R'' represents methyl, ethyl, fluorine, chlorine or trifluoromethyl,
- m represents the numbers 0, 1, 2 or 3, R'' representing identical or different residues if m represents 2 or 3,
- R''' represents methyl, ethyl, fluorine, chlorine or trifluoromethyl and
- n represents the numbers 0, 1, 2 or 3, R''' representing identical or different residues if n represents 2 or 3,
- R<sup>3</sup> represents pyridyl, which is linked in the second or fourth position and may be substituted one to four times, identically or differently, by fluoride, chloride, bromide, cyano, nitro, methyl, ethyl, methoxy, methylthio, hydroximinomethyl, hydroximinoethyl, methoximinomethyl, methoximinoethyl and/or trifluoromethyl, or
- R<sup>3</sup> represents pyrimidyl, which is linked in the second or fourth position and may be substituted one to three times, identically or differently, by fluoride, chloride, bromide, cyano, nitro, methyl, ethyl, methoxy,

- methylthio, hydroximinomethyl, hydroximinoethyl, methoximinomethyl, methoximinoethyl and/or trifluoromethyl, or
- R<sup>3</sup> represents thienyl, which is linked in the second or third position and may be substituted one to three times, identically or differently, by fluoride, chloride, bromide, cyano, nitro, methyl, ethyl, methoxy, methylthio, hydroximinomethyl, hydroximinoethyl, methoximinomethyl, methoximinoethyl and/or trifluoromethyl, or
- R<sup>3</sup> represents thiazolyl, which is linked in the second, fourth, or fifth position and may be substituted once or twice, identically or differently, by fluoride, chloride, bromide, cyano, nitro, methyl, ethyl, methoxy, methylthio, hydroximinomethyl, hydroximinoethyl, methoximinomethyl, methoximinoethyl and/or trifluoromethyl,
- R<sup>4</sup> represents hydrogen, methyl, ethyl, propyl or isopropyl
- Hal represents fluoride or chloride and
- X represents cyano, fluoride, chloride, bromide, iodide, nitro, formyl, trifluoromethyl, difluoromethyl, methyl, ethyl, cyclopropyl, thiocarbamoyl, methoxycarbonyl, methylcarbonyl, ethylcarbonyl, hydroximinomethyl, methoximinomethyl, methylthio, ~~methysulphinyl~~ methysulphinyl, methysulphonyl, methylaminocarbonyl, ethenyl, propenyl, hydroxymethyl, hydroxyeth-1-yl, methoxymethyl, thoxymethyl or 1-methoxy-ethyl, or
- X represents a residue of the formula

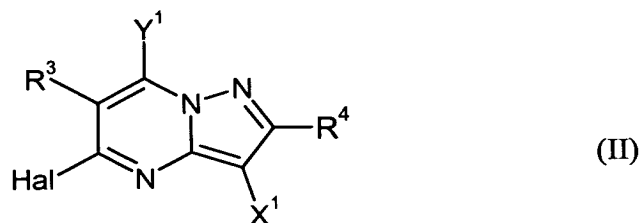


(Key: ~~oder~~ = or

~~steht~~ = represents)

4. (Currently amended) A method for producing pyrazolopyrimidines compounds of the formula (I) according to Claim 1, characterized in that ~~one reacts~~

a) ~~halogen pyrazolopyrimidines~~ one or more compounds of the formula



in which

R³, R⁴, and Hal have the meanings specified above,

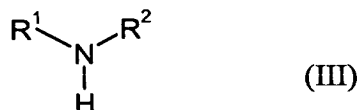
X¹ represents halogen, cyano, nitro, alkyl, halogenalkyl, cycloalkyl, formyl,



thiocarbamoyl, alkoxycarbonyl, alkylcarbonyl, alkylthio, alkylsulphinyl,  
alkylsulphonyl or alkylaminocarbonyl and

Y<sup>1</sup> represents halogen,

~~with amines~~ are reacted with one or more compounds of the formula



in which

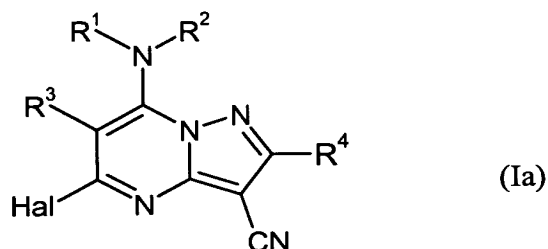
R<sup>1</sup> and R<sup>2</sup> have the meanings specified above,

optionally in the presence of a diluent, optionally in the presence of a catalyst,

and optionally in the presence of an acid acceptor,

or

b) ~~pyrazolopyrimidines~~ one or more compounds of the formula



in which

R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, and Hal have the meanings specified above,

either

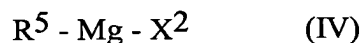
a) \_\_\_\_\_

are reacted with diisobutyl aluminum hydride in the presence of aqueous ammonium chloride solution and in the presence of an organic diluent,

or

~~β)~~ —

b) — are reacted with ~~Grignard~~ one or more compounds of the formula



in which

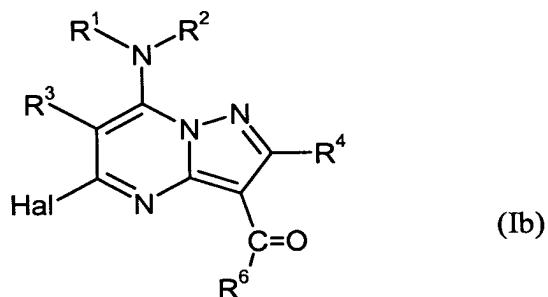
$R^5$  represents alkyl

$X^2$  represents chloride or bromide,

in the presence of a diluent and optionally in the presence of a catalyst,

or

c) ~~pyrazolopyrimidines~~ one or more compounds of the formula



in which

$R^1$ ,  $R^2$ ,  $R^3$ ,  $R^4$ , and Hal have the meanings specified above and

$R^6$  represents hydrogen or alkyl,

either

~~α)~~ —

a) — are reacted with ~~amine~~ one or more compounds of the formula



in which

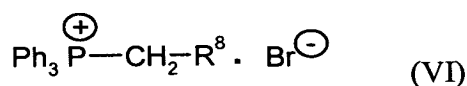
$R^7$  represents hydrogen or alkyl,

in the presence of a diluent and optionally in the presence of a catalyst, the ~~amine~~ compounds of the formula (V) also being able to be used in the form of their acid addition salts,

or

~~$\beta$ )~~—

~~$\beta$ )~~ are reacted with ~~triphenylphosphonium salts~~ one or more compounds of the formula



in which

Ph represents phenyl and

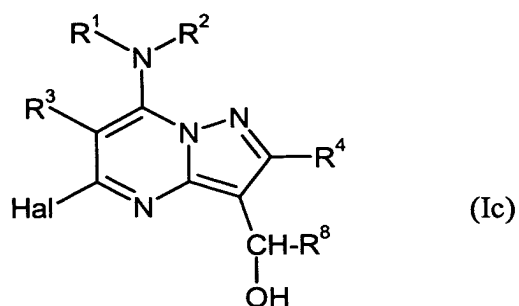
$R^8$  represents hydrogen or optionally substituted alkyl,

in the presence of a base and in the presence of a diluent,

or

~~$\gamma$ )~~—

~~$\gamma$ )~~ are reacted with diisobutyl aluminum hydride in the presence of aqueous ammonium chloride solution and in the presence of an organic diluent, or are reacted with sodium borohydride in the presence of a diluent, and optionally the resulting ~~pyrazolopyrimidines~~ compounds of the formula



in which

$R^1$ ,  $R^2$ ,  $R^3$ ,  $R^4$ ,  $R^8$ , and Hal have the meanings specified above,

are reacted with ~~alkylation agents~~ one or more compounds of the formula



in which

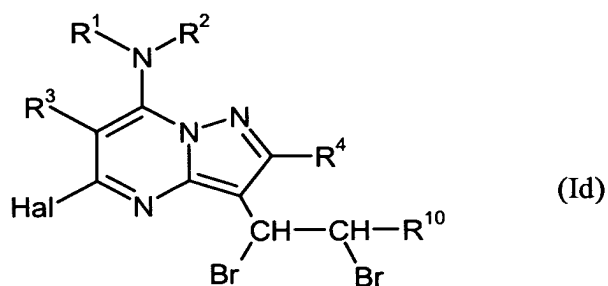
$R^9$  represents alkyl

$X^3$  represents chloride, bromide, iodide or the residue  $R^9\text{O-SO}_2\text{-O-}$ ,

optionally in the presence of a base and in the presence of a diluent,

or

d) ~~pyrazolopyrimidines~~ compounds of the formula

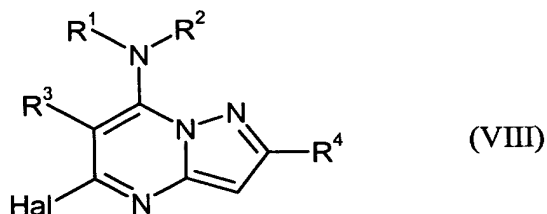


in which

$R^1$ ,  $R^2$ ,  $R^3$ ,  $R^4$  and Hal have the meanings specified above,

R<sup>10</sup> represents hydrogen or optionally substituted alkyl,  
are reacted with strong bases in the presence of a diluent,  
or

e) ~~pyrazolopyrimidines~~ compounds of the formula



in which

R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup> and Hal have the meanings specified above,  
are reacted with ~~acyl derivatives~~ one or more compounds of the formula



in which

R<sup>11</sup> represents alkyl and

X<sup>4</sup> represents chloride or a residue of the formula  $\text{—O—C(=O)—R}^{11}$ ,

in the presence of a catalyst and in the presence of a diluent.

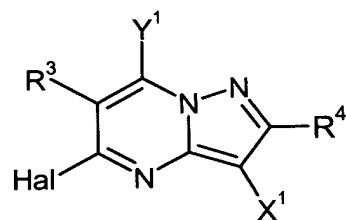
5. (Currently amended) ~~Agents for combating undesired micro-organisms,~~  
~~characterized by a content of~~ A composition comprising at least one ~~pyrazolopyrimidine~~  
compound of the formula (I) according to ~~one or more of Claims 1 through 3~~ Claim 1, in  
addition to extenders and/or surfactants.

6. (Canceled)

7. (Currently amended) A method for combating undesired ~~micro-organisms,~~  
~~characterized in that pyrazolopyrimidines~~ micro-organisms, comprising applying one or  
more compounds of the formula (I) according to ~~one or more of Claims 1 through 3~~ are  
applied Claim 1 to the undesired micro-organisms and/or their living space.

8. (Currently amended) A method for producing ~~agents for combating undesired~~  
~~micro-organisms, characterized in that pyrazolopyrimidines~~ the composition of Claim 5,  
comprising contacting said compounds of the formula (I) according to ~~one or more of~~  
~~Claims 1 through 3~~ are mixed with said extenders and/or surfactants.

9. (Currently amended) ~~Halogen pyrazolopyrimidines~~ A compound of the formula



(II)

in which

R<sup>3</sup> represents optionally substituted heterocyclyl,

R<sup>4</sup> represents hydrogen or alkyl,

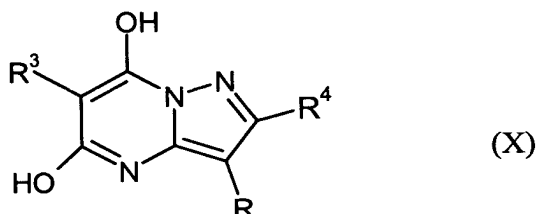
Hal represents halogen,

X<sup>1</sup> represents halogen, cyano, nitro, alkyl, halogenalkyl, cycloalkyl, formyl,  
thiocarbamoyl, alkoxycarbonyl, alkylcarbonyl, alkylthio, alkylsulphinyl,  
alkylsulphonyl or alkylaminocarbonyl and

Y<sup>1</sup> represents halogen.

10. (Currently amended) A method for producing ~~halogen pyrazolopyrimidines~~ compounds of the formula (II) according to Claim 9, characterized in that

f) ~~hydroxy pyrazolopyrimidines~~ one or more compounds of the formula



in which

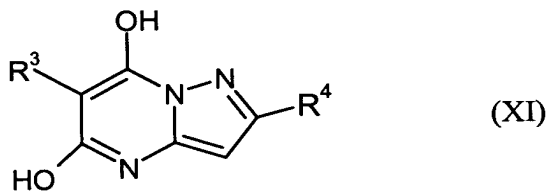
R³ and R⁴ have the meanings specified in Claim 9, and

R represents halogen, cyano, nitro, alkyl, halogenalkyl, cycloalkyl, thio carbamoyl, alkoxy carbonyl, alkylthio, alkylsulphinyl, alkylsulphonyl or alkylaminocarbonyl,

are reacted with halogenation agents, optionally in the presence of a diluent,

or

g) ~~hydroxy pyrazolopyrimidines~~ one ore more compounds of the formula

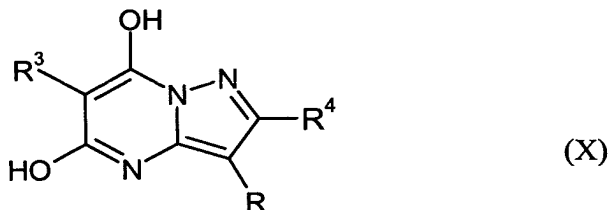


in which

R³ and R⁴ have the meanings specified in Claim 9,

are reacted with phosphorus oxychloride in the presence of dimethyl formamide and optionally reacted further while adding phosphorus pentachloride.

11. (Currently amended) ~~Hydroxy-pyrazolopyrimidines~~ A compound of the formula

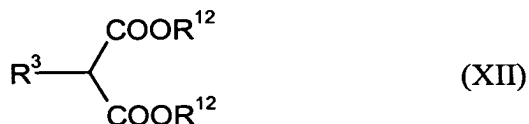


in which

- R<sup>3</sup> represents optionally substituted heterocyclyl,  
R<sup>4</sup> represents hydrogen or alkyl steht and  
R represents halogen, cyano, nitro, alkyl, halogenalkyl, cycloalkyl, thio carbamoyl, alkoxy carbonyl, alkylthio, alkylsulphinyl, alkylsulphonyl or alkylaminocarbonyl.

12. (Currently amended) A method for producing ~~hydroxy-pyrazolopyrimidines~~ compounds of the formula (X) according to Claim 11, characterized in that

- (h) ~~heterocyclyl-malonic esters~~ one or more compounds of the formula

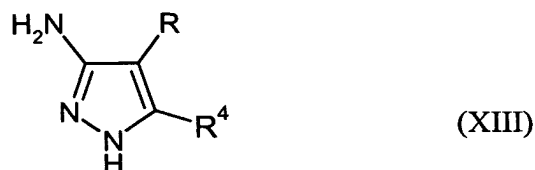


in which

- R<sup>3</sup> has the meaning specified in Claim 11 and  
R<sup>12</sup> represents alkyl having 1 to 4 carbon atoms,



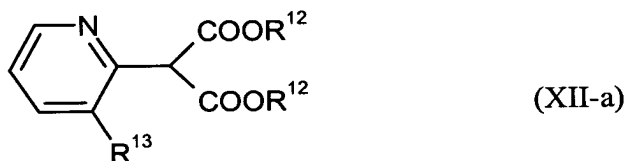
are reacted with ~~aminopyrazoles~~ one or more compounds of the formula



in which

R<sup>4</sup> and R have the meanings specified in Claim 11,  
optionally in the presence of a diluent and optionally in the presence of an acid  
binder.

13. (Currently amended) ~~Pyridyl malonic esters~~ A compound of the formula



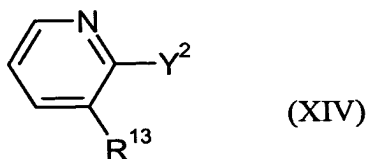
in which

R<sup>12</sup> represents alkyl having 1 to 4 carbon atoms and

R<sup>13</sup> represents halogen or halogenalkyl.

14. (Currently amended) A method for producing ~~pyridyl malonic esters~~ compounds  
of the formula (XII-a) according to Claim 13, characterized in that

- (i) ~~halopyridines~~ one or more compounds of the formula

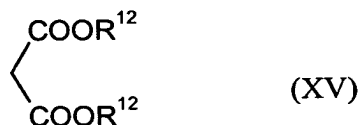


in which

R<sup>13</sup> has the meaning specified in Claim 13 and

Y<sup>2</sup> represents halogen,

are reacted with ~~malonic esters~~ one or more compounds of the formula

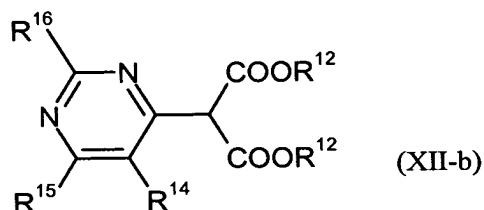


in which

R<sup>12</sup> has the meaning specified in Claim 13,

optionally in the presence of a diluent, optionally in the presence of a copper salt  
and optionally in the presence of an acid acceptor.

15. (Currently amended) ~~Pyrimidyl malonic esters~~ A compound of the formula



in which

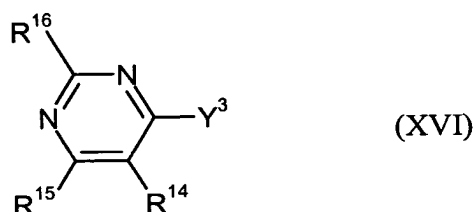
R<sup>12</sup> represents alkyl having 1 to 4 carbon atoms,

R<sup>14</sup> represents halogen or halogen alkyl, and

R<sup>15</sup> and R<sup>16</sup> independently of one another, represent hydrogen, fluoride,  
chloride, bromide, methyl, ethyl or methoxy.

16. (Currently amended) A method for producing ~~pyrimidyl malonic esters~~  
compounds of the formula (XII-b) according to Claim 15, characterized in that

(j) ~~halopyrimidines~~ one or more compounds of the formula

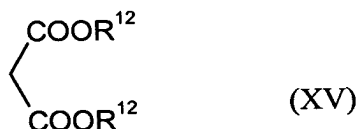


in which

R<sup>14</sup>, R<sup>15</sup> and R<sup>16</sup> have the meanings specified in Claim 15 and

Y<sup>3</sup> represents halogen,

are reacted with ~~malonic esters~~ one or more compounds of the formula



in which

R<sup>12</sup> has the meaning specified in Claim 15,

optionally in the presence of a diluent, optionally in the presence of a copper salt

and optionally in the presence of an acid acceptor.